

Kornfel'd, M. I.

AUTHORS: Drobina, A. V. and Kornfel'd, M. I.

126-1-25/40

TITLE: Oscillation of crystalline substances near the limit of elasticity. (Kolebaniya kristallicheskikh tel vblizi predela uprugosti).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.1, pp. 162-164 (USSR)

ABSTRACT: Takahashi, S. (Ref.1) observed that in the case of amplitudes exceeding a certain critical value, the magnitude of oscillations assumed a non-linear character; the resonance curve becomes sharply asymmetrical and the resonance amplitude will no longer be proportional to the amplitude of the exciting force and the resonance frequency will become dependent on the oscillation amplitudes. Also, the oscillations become unstable, namely, the resonance amplitude will fluctuate about a certain average value. The authors of this paper made experiments with a view to finding out whether this phenomenon also occurs for crystalline substances other than zinc. Therefore, they made experiments with aluminium of 99.5% purity. They found that the instability of the oscillations is due to trivial causes; structural changes during plastic deformation affect the damping decrement

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Physics Faculty, Moscow State Univ.

126-1-25/40

Oscillation of crystalline substances near the limit of elasticity.

and consequently also the resonance amplitude and in very pure zinc such structural changes occur even at room temperature. However, in aluminium which is not of high purity an accumulation of structural changes take place at room temperature which leads to a monotonous change of the resonance amplitude. Thus, it is concluded that the effects observed by Takahashi do not produce any new features which would assist understanding the mechanism of the plasticity of crystals. There are five figures and 2 references, one of which is Slavic.

SUBMITTED: June 7, 1956.

AVAILABLE: Library of Congress.

Card 2/2

Germanium Bolometers with Time-Dependent
Response Characteristics
The bolometer is a device which converts
incident radiation into an electrical signal.
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incident radiation into an electrical signal.
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incident radiation into an electrical signal.

Kornfel'd, M. I.

AUTHOR: Kornfel'd, M. I. 57-11-28/33

TITLE: Calculation of a Radiation Bolometer (Raschet radiatsionnogo bolometra)

PERIODICAL: Zhurnal Tekhn Fiz., 1957, No1. 27, Nr 11, pp. 2652-2661, (USSR)

ABSTRACT: The main characteristic of the bolometer is not the voltage sensitivity, but the so-called intensity of the radiation, that is the minimum intensity at which the signal can still be noticed at "noise" background. The experiment shows that this is given on the occasion of equality of the effective voltage of the signal and of the background noise of the bolometer-output. It is demonstrated that the electrical voltage sensitivity of the bolometer Z is dependent on the radiation-signal frequency and the effective voltage of the background noise on the frequency band where the background noise is measured. Therefore there is no point in the magnitude of the limit intensity as long as the radiation-signal frequency and the passage band of the bolometer operating together with the amplifier is not given. First the electrical and then the heat computation of the bolometer is described. After that the three types of bolometers: vacuum-bolometer, gas-filled bolometer and the solid bolometer are singly computed. A comparing evaluation of the constructions is given and it is shown that the results of the computations are in good accordance with the data of the experiments. There are 8 figures, 3 tables and 1 Slavic reference)

Card 1/2

KORNFIELD, M.I.

56-7-5/66

AUTHOR: KORNFIELD, M. I., CHUDINOV, A. A.
TITLE: Variation of the Elasticity Coefficient of Sodium Nitrate Crystal in Phase Transitions of the Second Kind. (Izmeneniye konstant uprugosti natriyevoy selitry pri fazovom perekhode vtorogo roda, Russian)
PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp 33-36 (U.S.S.R.)
ABSTRACT: On a NaNO_3 crystal the temperature dependence of its elasticity constant within the range of from 20-300° C was investigated. For the crystal constants S_{11} , S_{33} , S_{12} , S_{44} the temperature dependences were measured, and in no cases except in S_{33} was a salient point found in the course of the curve at the point of phase transition. At S_{33} a marked peak formation is found. The point of phase transition (second degree) was determined at 275,5° C. (With 1 Table, 4 Illustrations, and 3 Slavic References).
ASSOCIATION: Institute for Semiconductors of the Academy of Sciences of the U.S.S.R. Molotov State University (Institut poluprovodnikov Akademii Nauk SSSR, Molotovskiy gosudarstvennyy universitet)
PRESENTED BY:
SUBMITTED: 23.2.1957
AVAILABLE: Library of Congress
Card 1/1

67388

SOV/181-i-9-6/31

24.7700
24(3)

AUTHORS:

Kornfel'd, M. I., Sochava, L. S.

TITLE:

Fluctuations of Conductivity in Solid and Liquid Antimony Sulfide

PERIODICAL:

Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1366 - 1369 (USSR)

ABSTRACT:

The present paper gives an account of the investigation of these fluctuations in a wide temperature range, which includes the liquid state of the semiconductor (Sb_2S_3). Sb_2S_3 is, according to V. A. Yurkov, a semiconductor also in the liquid state and furthermore it has a relatively low melting point ($550^\circ C$). The Sb_2S_3 was prepared by melting antimony and sulfur in a stoichiometric ratio in pumped quartz ampuls. The experiments proper were made in an ampul of difficultly meltable glass with four tungsten electrodes. The fluctuation voltage was measured between the potential electrodes of the sample. According to the results of the provisional experiments there occurs a so-called excess noise of the amperage in Sb_2S_3 , and it holds $\sqrt{\Delta V^2} = \eta \frac{1}{\sqrt{f_m}} V^n \sqrt{\Delta f}$. Here, $\sqrt{\Delta V^2}$ denotes the measur-

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Fluctuations of Conductivity in Solid and Liquid
Antimony Sulfide

SOV/181-1-9-6/31

able value of the fluctuation voltage, f is the frequency, at which measurement was made, Δf is the band width of the frequencies of the measuring apparatus. In most of the cases, m and n are in the vicinity of 1. As a measure for these fluctuations one selects the dimensionless quantity

$\eta = \frac{\sqrt{\Delta V^2}}{V} \sqrt{\frac{f}{\Delta f}}$. In the antimony-sulfide samples investigated here the fluctuation voltage linearly depends only to a certain degree on the voltage on the sample, and then rises considerably faster. Thus, for example, the proportionality between V and $\sqrt{\Delta V^2}$ ends at 180°C at a voltage of ~ 7 v on the sample. All current noise measurements (the dependence on frequency and on temperature) took place in the range of the linear dependence upon the voltage applied. The spectral density of the fluctuations of conductivity depends in the entire measuring range (25 to 10,000 cycles) according to $1/f$ on frequency. Between 180 and 380°C no deviation from this dependence was found. Also in the case of measurements on samples with a purity of 99.99% the same form of the spectrum

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Fluctuations of Conductivity in Solid and Liquid
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was found. The temperature dependence of the intensity of fluctuations was measured in the temperature range 180 to 580°C. In this temperature range $\lg \eta$ depends (in which connection $\eta = \frac{\sqrt{\Delta V^2}}{V} \sqrt{\frac{f}{\Delta f}}$ holds) almost linearly on temperature. Control measurements made in the same temperature range on samples having a purity degree of 99.99% yielded very similar results with respect to the current noise and also with respect to the temperature dependence. The fluctuations of conductivity at ~200°C ($\eta = 4 \cdot 10^{-6}$) are by 1.5 - 2 orders larger than in semiconductors. The most interesting, however, is the exponential dependence of the amount of fluctuations on temperature. In the temperature range investigated here the amount of fluctuations decreases by thousand times. There is a clear parallelism for the temperature dependence of the noise level and the resistivity in one and the same sample. Also the low level of current noise in liquid antimony sulfide is to be pointed out. There are 5 figures and 2 Soviet references. ✓

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Fluctuations of Conductivity in Solid and Liquid
Antimony Sulfide

SOV/181-1-9-6/31

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of
Semiconductors of the AS USSR Leningrad)

SUBMITTED: November 14, 1958

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67389

SOV/181-1-9-7/31

24.7700
24(3), 24(6)
AUTHORS:

Kornfel'd, M. I., Sochava, L. S.

TITLE:

Fluctuations of Conductivity in Amorphous Semiconductors

PERIODICAL:

Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1370 - 1371 (USSR)

ABSTRACT:

As has been shown by Brophy (Ref 1), structural disturbances in germanium crystals caused by plastic deformation lead to an increase in conductivity fluctuations (current noise). One can therefore assume that these fluctuations will be especially large in greatly disturbed (e.g. amorphous) structures. To prove this, the authors measured the amount of current noise in the following amorphous semiconductors: $Tl_2Te.As_2Te_3$ and $Tl_2Se.As_2Te_3$ (the samples were prepared by B.T. Kolomiets and T. N. Mamontov). The first-mentioned sample had the following characteristics: resistivity: 15 ohm.cm, width of the forbidden zone: 0.59 ev, concentration of majority carrier (holes): $4 \cdot 10^{18} \text{ cm}^{-3}$ (at 20°C), its mobility: $0.1 \text{ cm}^2/\text{v} \cdot \text{sec}$. The current noise measurement was made by the four-electrode method at 1400 cps. The setup used is described

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KORNFEL'D, M.I.; MIRLIN, D.N.

Temperature dependence of low-frequency conductivity fluctuations
in germanium. Fiz.tver.tela 1 no.12:1866-1868 D '59.
(MIRA 13:5)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Germanium--Electric properties)

S/181/60/002/01/10/035
B008/B011

AUTHOR: Kornfel'd, M. I.

TITLE: Light Dispersion¹ in Germanium

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 48 - 49

TEXT: The author offers investigation results of light dispersion in germanium in the shortwave range $1.5 - 2.2 \mu$ and in a wide temperature range between 80 and 460°K. The experimental results are depicted in Fig. 1, where the energy of the light quantum is plotted on the abscissa and the square of the refractive index on the ordinate. These results can be expressed by the quantum-mechanical dispersion formula (Ref. 3):

$$n^2 = A + \frac{B}{E_*^2 - E^2} \cdot A, B, E_* - \text{constants, } E = h\nu - \text{energy of the light}$$

quantum. The curves in Fig. 1 were calculated with the aid of this formula for $A = 12.7$, $B = 6.0$ and the E_* values specified in the Table. The applicability of this formula is even more convincingly proven by Fig. 2. The results obtained by C. D. Salzberg and J. J. Villa (empty

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✓

APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000824720003

Light Dispersion in Germanium

S/181/60/002/01/10/035
B008/B011

circles) and those obtained by the author for 291°K (full circles) are given here. The curve was calculated from the given values of the constants. Thus, the dispersion of light is described by a one-termed formula with a definite transition energy. There are 2 figures, 1 table, and 3 references: 1 Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AS USSR, Leningrad)

SUBMITTED: July 30, 1959

✓

Card 2/2

S/181/60/002/01/35/035
B008/B014

24.7700

AUTHOR: Kornfel'd, M. I.

TITLE: Light Absorption in Germanium ²¹

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 179-180

TEXT: The absorption coefficient of germanium single crystals was measured here. The results obtained are represented in Fig. 1. Evaluation of

these data leads to the following formula: $\alpha = A \exp \left(\frac{-(E_0 - E)}{kT} \right) \quad (1)$.

$A = 2 \cdot 10^4 \text{ cm}^{-1}$; $E_0 = 0.89 \text{ eV}$; $E = h\nu$. The experimental data given in

Refs. 1-3 correspond to this formula. The relations set up according to

these data are represented in Fig. 2: $E_0 = E + kT(\ln 2 \cdot 10^4 - \ln \alpha) \quad (2a)$;

$\ln A = \ln \alpha + \frac{0.89 - E}{kT} \quad (2b)$. It may be seen that the stability of the constants A and E is kept with the highest degree of accuracy possible

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temperature light absorption may be interpreted with the aid of concepts. There are 2 figures and 4 non-Soviet references.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors of the AS USSR, Leningrad)

APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000824720003-5

SUBMITTED: September 23, 1959

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KORNEL'D, M.I.; MIRLIN, D.M.

Investigating the low-frequency fluctuations of conductivity in germanium appearing during illumination. Fiz. tver. tela 2 no.5: 1026-1029 My '60. (MIRA 13:10)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Germanium--Electric properties)

KORNFELD, M. I.

82599

S/056/60/039/01/07/029
B006/B070

24.7100
5.5310

AUTHORS: Kornfel'd, M. I., Lemanov, V. V.

TITLE: Quadrupole Effect in the Nuclear Magnetic Resonance in the NaNO₃-AgNO₃ Mixed Crystals ¹⁹

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 1 (7), pp. 53-56

TEXT: In the introduction, the authors discuss the methods and results of investigations of the quadrupole effects in nuclear magnetic resonance in cubical crystals (Refs. 1, 2), and refer, among other things, to the inadequacy of these crystals since it is not possible with them, for example, to observe the satellites (transition $m \rightarrow m-1$ with $m \neq 1/2$) of the central line ($m = 1/2 \rightarrow m = -1/2$) separately. In crystals with lower symmetry, the electric field strength in the lattice is non-vanishing and the absorption line is split into its components, that is, into the central line and its satellites. To investigate the intensity of the satellites the authors used NaNO₃-AgNO₃ mixed crystals and NaNO₃ single crystals. On

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Quadrupole Effect in the Nuclear Magnetic
Resonance in the $\text{NaNO}_3\text{-AgNO}_3$ Mixed Crystals

S/056/60/039/01/07/029
B006/B070

account of rhombohedral symmetry, the latter show a splitting of the Na^{23} line into a central line and two symmetrically situated satellites. To investigate the influence of impurities on the Na^{23} spectrum, the authors used the above mentioned mixed crystals where Ag^+ replaces the Na^+ ion. By the investigation of the line spectrum it was found that the breadth of the satellite lines depended on the orientation of the crystal in the magnetic field (4400 oe). For $\varphi = 0$ and 90° (φ - angle between the symmetry axis and \vec{H}), the satellites and the central line had a breadth of the order of 2-2.5 kc/sec which corresponds to a dipole-dipole width. For intermediate positions, the satellites became broader but their intensity remained constant and independent of the position. This effect may be explained by the mosaic structure. Fig. 1 shows the nuclear magnetic resonance spectra for pure NaNO_3 , $\text{NaNO}_3 + 0.5\% \text{AgNO}_3$ and $\text{NaNO}_3 + 2.1\% \text{AgNO}_3$ for $\varphi = 90^\circ$. In Fig. 2 the relative satellite intensity is shown as a function of the AgNO_3 content. The intensity diminished rapidly with increasing Ag^+ concentration. For a concentration of 0.021 (21 Ag^+ ions per 1000 Na^+) the satellites completely disappeared. The

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APPROVED FOR RELEASE: 06/14/2000

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CIA-RDP86-00513R000824720003

Quadrupole Effect in the Nuclear Magnetic
Resonance in the $\text{NaNO}_3\text{-AgNO}_3$ Mixed Crystals

S/056/60/039/01/07/029
B006/B070

fact that the satellites show no broadening makes possible an analysis of the experimental results by the method of the critical sphere. It may be rightly assumed that no impurity ions (Ag^+) penetrate into the critical sphere. From this it is concluded that the critical sphere contains 138 Na^+ ions and has a radius of about 13 Å. There are 2 figures and 5 references: 2 Soviet, 1 American, and 1 Japanese.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of
Semiconductors of the Academy of Sciences of the USSR)

SUBMITTED: February 19, 1960

Card 3/3

83171

Nuclear-magnetic Resonance in Plastically Deformed Rock Salt

S/056/60/039/002/008/044
B006/B056

occurring in plastic compression were found to be linear; they are not described as dislocations but as distortion centers. In consideration of this fact as well as of the lacking of a broadening of the absorption lines, the authors, like in the case of impurity crystals, used the model of the critical sphere for calculating the satellite intensities in the case of randomly distributed distortion centers. Thus,

$\ln(J/J_0) \approx -cv_c/v_0$. J and J_0 are the satellite intensities in the deformed and undeformed crystal, respectively, c the distortion-center concentration, v_0 the volume taken up by such a center, and v_c the volume of the critical sphere. It may be assumed that c is proportional to the degree of deformation, so that $\ln(J/J_0)$ would be a linear function of the degree of deformation. The diagram shows that this is actually the case. The authors finally show a possibility of estimating the size of the critical sphere from two relations set up for the field gradients. Thus, the value of 10^3 Å is obtained for the radius of the critical sphere in plastically deformed NaCl. There are 1 figure and 6 references: 2 Soviet, 3 Japanese, and 1 British.

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26700
S/056/61/041/005/015/038
B102/B108

24.7500 (1144,1482)

AUTHOR: Kornfel'd, M. I., Lemanov, V. V.

TITLE: Distortion of the NaCl lattice by Ag^+ , Br^- and K^+ impurities

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
no. 5(11), 1961, 1454 - 1460

TEXT: Nuclear magnetic resonance measurements were used to study the lattice distortions caused by impurity ions. The character and the amount of the distortions can be determined from an investigation of the quadrupole effects in this resonance. The interaction of the nuclear quadrupole moments with the electric field gradient causes a shift of the "satellite" frequencies which is proportional to the vicinity of the nucleus to the impurity ion. A "critical sphere" exists around this ion. For nuclei within it, the satellite frequency shift is greater than the half-width of the absorption line at the noise level. In order to determine the properties of this sphere and the lattice distortions at its boundaries, the authors measured the dependence of the lattice constant and of the intensity of the nuclear magnetic resonance absorption lines of

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26700
S/056/61/041/005/015/038
B102/B108

Distortion of the NaCl....

Na^{23} on the concentration of the impurities AgCl, NaBr and KCl in NaCl single crystals. The maximum impurity concentrations were 4, 11 and 3 mole%, respectively. The lattice parameters were measured by A. I. Zaslavskiy and T. B. Zhukova by means of a PKY-114 (RKU-114) camera and Cu K_α radiation, with an accuracy of $\pm 3 \cdot 10^{-4}$ Å. The relative changes of the lattice parameters $\Delta a/a_0$ were found to be linear functions of the impurity concentrations. The largest changes were observed for NaCl-KCl.

The absorption lines of Na^{23} in pure and in impurified samples were measured with an apparatus described in an earlier paper (V. V. Lemanov, PTE, 1, 126, 1961). The intensities of the absorption lines decreased exponentially with increasing impurity concentrations and approached the intensity of the central line, which was 40% of the total intensity for Na^{23} with a nuclear spin of $3/2$. With a further increase in concentration, also the central line was weakened, due to second-order quadrupole effects. These effects became evident at 3 mole% of KCl and 10 mole% of NaBr. For AgCl impurities, no decrease in the intensity of the central line was observed. The first parts of the curves $J/J_0 = f(c)$ can be

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26700
S/056/61/041/005/015/038
B102/B108

Distortion of the NaCl...

approached by straight lines. From their slope, the number n of Na^+ ions within the critical sphere (radius R) can be determined. The following was found: Ag^+ : $n=76$, $R = 8.9$ Å; Br^- : $n = 200$, $R = 12.4$ Å; K^+ : $n = 460$, $R = 16.7$ Å. J/J_0 as a function of the total volume nc of the critical spheres obeys a hyperbolic law and, at low impurity concentrations, is independent of the nature of the impurity. $|\Delta a|/a_0 = f(nc)$ is independent of the nature of the impurity and has a linear course. The elastic lattice distortions are determined from the components of the S tensor which interrelates \vec{E} and the elastic lattice deformations. The frequency shift of the satellite lines for quadrupole interaction is given by $\Delta\nu = 3eQ(2m-1)\psi_{HH}/4I(2I-1)h$, where I is the nuclear spin, Q the nuclear quadrupole moment and ψ_{HH} is the component of the field gradient in the direction of \vec{H} . With this formula, ψ_{HH} can be determined for nuclei situated at the boundary of the sphere. ψ_{HH} was found to be about 10^{12} CGSE units. From this, the deformation at the boundary of the critical sphere was determined to be of the order of 10^{-3} . The relative

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34022

S/056/62/042/001/047/048
B142/B112

24,7500 (1144, 1482, 1454)

AUTHORS: Devyatko, Ye. D., Kornfel'd, M. I., Smirnov, I. A.
TITLE: Phonon scattering from impurity ions in the NaCl crystal
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 1, 1962, 307-308

TEXT: The principal impurities contained in the NaCl crystal are Ag^+ , Br^- , and K^+ . Their presence causes the lattice distortions and the formation of scattering centers for phonons. The scattering cross section is proportional to the square of the radius of the distorted domains. This means that for Ag^+ , Br^- , and K^+ the ratio of their scattering cross sections will be 1 : 2.0 : 3.5 (ratio of the radii of the distorted domains = 1 : 1.4 : 1.9). In the following proof is furnished for this statement. For low impurity ion concentrations $\Delta R/R_0 = f(l_0/l_w)$, where R_0 = thermal resistance of the pure crystal, ΔR = additional thermal resistance due to impurities, l_0 , l_w = mean free path of phonons. Since $l_0 \sim 1/R_0 \bar{v} C_v$ and $l_w \sim 1/SN$, $\Delta R/R_0 = f(\eta)$, where $\eta = SN/R_0 \bar{v} C_v$. (\bar{v} = mean sound velocity,

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KORNFEL'D, M.I.

Light dispersion in germanium. Fiz. tver. tela 2 no.1:48-49
Jan '60. (MIRA 14:9)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Germanium—Optical properties)

KORNFEL'D, M.I.

Light absorption in germanium. Fiz. tver. tela 2 no.1:179-180
Jan '60. (MIRA 14:9)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Germanium--Optical properties)

KORNFEL'D, M.I.; LEMANOV, V.V.

Distortions of the NaCl lattice by Ag^+ , Br^- , and K^+ impurity ions. Zhur. eksp. i teor. fiz. 41 no.5:1454-1460 N '61. (MIRA 14:12)

1. Institut poluprovodnikov AN SSSR.

(Dislocations in crystals)

(Salt crystals)

(Ions)

DEVYATKOVA, Ye.D.; KORNFEL'D, M.I.; SMIRNOV, I.A.

Phonon scattering on impurity ions in sodium chloride crystals.
Zhur.eksp.i teor.fiz. 42 no.1:307-308 Ja '62. (MIRA 15:3)

1. Institut poluprovodnikov AN SSSR.
(Ions) (Sodium chloride crystals) (Scattering (Physics))

S/181/62/004/012/046/052
B125/B102

AUTHORS: Devyatkov, Ye. D., Kornfel'd, M. I., and Smirnov, I. A.
TITLE: Phonon scattering from impurity ions of Ag, Br, K, Li, I, and Rb in sodium chloride crystals
PERIODICAL: Fizika tverdogo tela, v. 4, no. 12, 1962, 3669-3670

TEXT: The heat conduction of NaCl-crystals was measured at room temperature with added Li^+ , I^- and Rb^+ . The local distortions of the NaCl-lattice near the impurity ions listed have been investigated by M. I. Kornfel'd, V. V. Lemanov (ZhETF, 43, 2021, 1962). The relative changes of the thermal resistance $\Delta R/R_0$ for the samples with impurities of Li^+ , I^- , Rb^+ (present paper) and Ag^+ , Br^- , and K^- as a function of the dimensionless $\eta = SN/R_0 \bar{v} C_v$ fit the same curve very well. The values 0, 1.0, 2.0, 3.0, 4.0 and 5.0 of η correspond with the values ~ 0.32 , ~ 0.48 , ~ 0.62 , ~ 0.74 and ~ 0.85 of $\Delta R/R_0$. S is the cross section of the distorted zone, N the number of impurity ions per unit volume, \bar{v} the mean sound velocity, C_v the specific heat. There is 1 figure.

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Phonon scattering from impurity...

S/181/62/004/012/046/052
B125/B102

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: August 2, 1962

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S/056/62/043/006/009/067
B154/B102

AUTHORS: Kornfel'd, M. I., Lemanov, V. V.

TITLE: On local distortions of a crystal lattice by impurity ions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 6(12), 1962, 2021 - 2023

TEXT: The dimensions of the distorted zones around Ag^+ , Br^- , K^+ impurities in the NaCl lattice have already been investigated by M. I. Kornfel'd and V. V. Lemanov (ZhETF, 41, 1454, 1961) by way of the critical sphere with the impurity ion in the center and fixed deformation on its surface. For I^- , Li^+ , Rb^+ the distorted-zone dimensions were determined in this paper. Basing on the theory of elasticity of continuous media, the range R of the deformation ϵ from the center of the sphere is given by

$\epsilon = \epsilon_0 r_0^3 / R^3$ where $\epsilon_0 = \lambda(r_n - r_0) / r_0$ is the deformation on the sphere's surface, r_0 is the radius of a hollow sphere in the medium and r_n is the radius of a little sphere inserted in it. λ depends on the relation between the elastic properties of the medium and the little sphere. If a
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On local distortions of...

S/056/62/043/006/009/067
B154/B102

molecule consisting of the impurity ion and six neighboring ions with opposite sign is assumed to form the sphere, then the elastic properties of the crystals considered are nearly equal and $\sim \pm 1/2$ in all cases. The values of r_n , which are the ionic distances are taken from the Index to X Ray Powder Data File (ASTM, Philadelphia, 1959). For $r_0(\text{NaCl})$ 2.8201 Å is obtained. Thus the authors determined the following values for $|E| \cdot 10^3$: 0.18 (Ag^+), 0.24 (Br^-), 0.24 (Li^+), 0.19 (K^+), 0.23 (I^-), 0.20 (Rb^+). Good agreements between the calculations and experimental data are observed when the ionic distances of the corresponding lattice are used as characteristic dimensions. If the impurity ion is assumed to form the sphere then the results calculated will disagree with experiment. There is a table.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

SUBMITTED: July 7, 1962

Card 2/2

DEVYATKOVA, Ye.D.; KORNFEL'D, M.I.; SMIRNOV, I.A.

Phonon scattering on impurity ions of Ag, Br, K, Li, I, Rb in sodium chloride crystals. Fiz.tver.tela 4 no.12:3669-3670 D '62. (MIRA 15:12)

1. Institut poluprovodnikov AN SSSR, Leningrad.
(Scattering (Physics)) (Sodium chloride crystals)

ACCESSION NR: AP4033137

S/0120/64/000/002/0150/0152

AUTHOR: Abayev, M. I.; Kornfel'd, M. I.

TITLE: Measuring internal friction in solid-state bodies

SOURCE: Priory* i tekhnika eksperimenta, no. 2, 1964, 150-152

TOPIC TAGS: friction, solid body internal friction, internal friction measurement, internal friction electrostatic measurement

ABSTRACT: A new electrostatic method for measuring internal friction is free from two shortcomings of the techniques used heretofore: cementing the specimen to the vibrator and electric contact with the specimen. The 16x5x1-mm specimen rests on two 0.07-mm glass filaments whose ends are welded to a glass disk (see Enclosure 1). Four Pt electrodes are cathode-sprayed on the disk surface. Two inner electrodes are intended for generating cantilever vibrations in the specimen by an electrostatic field; two outer electrodes, for measuring the

Card 1/3

ACCESSION NR: AP4033137

vibration amplitude by a variation of capacitance between these electrodes and the specimen. The device permits measuring the internal friction (from 10^{-6} and higher) in the kc range, within 100-600K, by attenuation of the specimen's free vibrations. "The authors wish to thank V. V. Sokolov who built the mechanical part of the device." Orig. art. has: 5 figures and 1 formula.

ASSOCIATION: Institut poluprovodnikov AN SSSR (Institute of Semiconductors, AN SSSR)

SUBMITTED: 09Apr63

DATE ACQ: 11May64

ENCL: 01

SUB CODE: S3

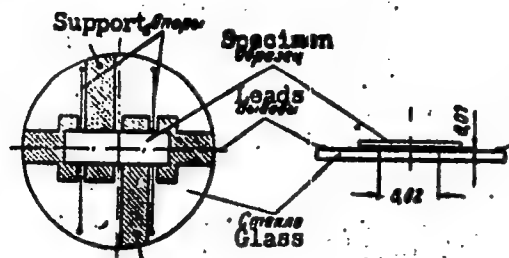
NO REF SOV: 001

OTHER: 004

Card 2/3

ACCESSION NR: AP4033137

ENCLOSURE: 01



Device for measuring internal friction
in solid-state materials

Card 3/3

KORNFEL'D, M.I.

Errors and reliability of simple experiments. Usp. fiz. nauk 85
no.3:533-542 Mr '65. (MIRA 18:4)

L 63317-65 EEC(b)-2/EPF(c)/ENT(1)/T P1-L IJP(c) GO/WH

ACCESSION NR: AP5017340

GR/0181/65/007/007/2249/2252

AUTHOR: Kornfel'd, M. I.; Lemanov, V. V.

TITLE: Compensation of bivalent metal impurities in alkali halide crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2249-2252

TOPIC TAGS: nuclear magnetic resonance, crystal impurities

ABSTRACT: In studying the line width of Na^{23} nuclear resonance in NaCl as a function of temperature, a compensation effect was observed between bivalent cation impurities and bivalent anion impurities. The temperature dependence showed a very sharp reduction of line width in a certain temperature interval, which was attributed to diffusion of Na^+ ions. Theory indicates that the temperature at which line narrowing occurs depends on the concentration of cation vacancies: the higher the concentration the lower the temperature. The introduction of monovalent impurities did not change the curve of line-width vs. temperature. The bivalent impurities Ca^{2+} and CO_3^{2-} , however, moved the curve toward lower and higher temperatures respectively, by amounts which increased with concentration. Theoretical calculations are made of cation vacancy concentrations for these impurities, and are used to ac-

40 REF SOV 001

OTHER: 004

Card 2/2

L 6454-66 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EWP(j)/T/EWP(t)/EWP(b) IJP(c)
 ACCESSION NR: AP5019855 JD/JW/GG/RM UR/0181/65/007/008/2391/2396

AUTHOR: Kornfel'd, M. I.; Sochava, L. S.

TITLE: Complexes of Mn^{2+} and F^- impurity ions in strontium chloride crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2391-2396

TOPIC TAGS: strontium compound, magnesium, fluorine, crystal impurity, inter-molecular complex, EPR spectrum, crystal symmetry

ABSTRACT: The purpose of the investigation was to check whether complex ions can be made up of two impurity ions in the case when the two ions have the same charge as the corresponding regular lattice points. To this end, the EPR method was used to observe the formation of two types of complexes in $SrCl_2$ crystals (cubic lattice of the fluorite type), $Mn^{2+}-F^-$ and $Mn^{2+}-2F^-$. The $SrCl_2$ single crystals were grown from powder by a procedure described by the authors elsewhere (FTT v. 5, 2232, 1963). The measurements were made in the 3-cm band with an RE-1301 spectrometer at 77 and 300K. Tests were made to determine the solubility of the fluorine in the $SrCl_2$ as a function of the temperature and the heat treatment of the sample. This was followed by investigations of the dependence of the axial and rhombic EPR spectra on the fluorine concentration. The results show that both spectra are due to the presence of fluorine ions in the nearest surrounding of the Mn^{2+} , the axial

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L6454-66

ACCESSION NR: AP5019855

spectrum being due to the complex with one F^- ion, and the rhombic to the complex with two F^- ions. The effect of the fluorine ions on the crystalline-field symmetry is discussed. It is also shown that alignment of the fluorine ions with the manganese ions is energetically more favored than an arrangement corresponding to the regular lattice. "The authors thank G. L. Bir for useful advice." Orig. art. has: 3 figures. K

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AN SSSR) 44, 55

SUBMITTED: 01Mar65

ENCL: 00

SUB CODE: SS

NR REF SOV: 007

OTHER: 008

BW

Card 2/2

L 0050-00 EWP(1)/EWP(M)/EPP(H)-2/T/EWP(C)/EWP(D)/EWP(E) LPP(C) DIZQU

ACC NR: AP5022728 SOURCE CODE: UR/0181/65/007/009/2809/2815

AUTHOR: ^{44,55} Abayev, M. I.; ^{44,55} Kornfel'd, M. I. ⁵⁷
^{44,55}

ORG: ^{44,55} Institute of Semiconductors AN SSSR, Leningrad (Institute poluprovodnikov AN SSSR)

TITLE: Pore formation during decomposition of solid solutions of bivalent ions in sodium chloride

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2809-2815

TOPIC TAGS: sodium chloride, ²¹light scattering, solid solution, crystal impurity, crystal structure, crystal defect
^{21,44,55}

ABSTRACT: The process of pore formation during decomposition of solid solutions of Me^{2+} ions in NaCl is studied. Single crystal specimens with the following impurities were used: $BaCl_2$, $SrCl_2$, $CaCl_2$, $CoCl_2$, $NiCl_2$, $MnCl_2$, $CdCl_2$, $ZnCl_2$ and $PbCl_2$. A photomicrograph is given of a crystal with an admixture of $BaCl_2$. "Rods" lying along the $\langle 110 \rangle$ axis are clearly visible, although some of them are at a slight angle to this axis. These "rods" reach a length of 10-15 μ with thicknesses up to 1 μ . Quenching from 700°C completely eliminates these "rods" which indicates that they appear during decomposition of the solid solution. It is assumed that these objects are pores. While there were no visible pores in the other crystals studied, light scat-

Card 1/2

2

Card 2/2

KORNFELD, V.

Histologic technique in nerve tissue staining. Biol.listy 31
Suppl:164-173 2 Jan 1951. (CML 20:9)

1. Of the Institute of Embryology of Charles University, Prague
(Head--Prof. Z. Frankenberger, M.D.). Author is M.D.

LEYKIN, Veniamin Yefimovich; KAMALAW, Rafael' Galiyevich; KORNEL'D, V.N.,
redaktor; YABLONSKAYA, L.V., redaktor; EVENSON, I.M., tekhnicheskii
redaktor..

[Experience in operating open-hearth furnaces with magnesite-
chromite crowns] Opyt ekspluatatsii martensvskikh pechei s magne-
sitekhremitovymi svedami. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry
po chernoi i tsvetnoi metallurgii, 1956. 47 p. (MLRA 9:4)
(Chelyabinsk--Open-hearth furnaces)

Korntfeld, V. N.

1000

Use of oxygen in the ore-bearing open-hearth process.
I. P. Bardin, K. G. Trubin, L. M. Kungov, K. M. Trubet-
skov, V. N. Korntfeld, R. I. Men'sikov, and V. P. Mazov.
Sov. 16, 103-105 (1969). -- Experience accumulated on all-
basic 200-ton open-hearth furnaces in making running steel
with up to 33% O₂ in the flame or blowing it through the roof
is presented in detail. The practice shortens the heats and
saves fuel. I. D. Gai.

1000

TRUBETSKOV, K.M., kandidat tekhnicheskikh nauk; MEN'SHIKOV, R.I., kandidat tekhnicheskikh nauk; KORNFEL'D, V.M., kandidat tekhnicheskikh nauk.

Intensification of the scrap metal process by feeding oxygen into the flame jet. Sbor.trud.TSNIICM no.13:56-108 '56. (MLA 9:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metal-lurgii, Moskovskiy institut stali, TSentroenergochermet.

(Open-hearth process)

(Oxygen--Industrial applications)

KORNFIELD, V.V.

18(5)

PHASE I BOOK EXPLOITATION

SOV/2295

Moscow. Institut stali

Primeneniye kislороda v staleplavil'nom proizvodstve (Use of Oxygen in Steelmaking) Moscow, Metallurgizdat, 1957. 418 p. (Series: Its: Sbornik, 37) Errata slip inserted. 3,500 copies printed.

Ed.: Ye. A. Borko; Ed. of Publishing House: Ya. D. Rozentsveyg; Tech. Ed.: Ye. B. Vaynshteyn; Editorial Board of the Institute: M.A. Glinkov, Doctor, Professor; R.N. Grigorash, Candidate of Technical Sciences, Docent; N.T. Gudtsov, Academician; V.P. Yelyutin, Doctor, Professor; A.A. Zhukhovitskiy, Doctor, Professor; I.N. Kidin, (Resp. Ed.) Doctor, Professor; B.G. Livshits, Doctor, Professor; A.P. Lyubimov, Doctor, Professor; I.M. Pavlov, Corresponding Member, Academy of Sciences, USSR; K.G. Trubin, Doctor, Professor; and A. N. Pokhvisnev, Doctor, Professor

PURPOSE: This collection of articles is intended for scientific, industrial, chemical, and metallurgical engineers, physicists

Card 1/9

APPROVED FOR RELEASE: 06/14/2000
Use of Oxygen in Steelmaking

CIA-RDP86-00513R000824720003
SOV/2295

and students.

COVERAGE: This book is a collection of scientific research papers on the utilizations of oxygen in steelmaking. The use of oxygen blast for the intensification of fuel combustion and the introduction of oxygen into liquid metal in order to oxidize admixtures are among the topics discussed. The use of oxygen in scrap-ore processes for making steel from pig iron with a high phosphorus content is also discussed. Several articles deal with the heating and processing fundamentals of steelmaking in a recirculation steel-melting furnace. Individual articles deal with the economics of steelmaking with oxygen-blast and the optimum conditions for effective utilization of oxygen. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

Filipov, S.I. [Professor, Doctor of Technical Sciences]. Kinetics of Oxidation of Elements in the Metal Bath During Oxygen Blast 5
The author discusses oxidation of carbon, manganese, silicon,

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and phosphorus, in relation to the rate of introduction of oxygen into the bath.

Glinkov, M.A. [Professor, Doctor of Technical Sciences] and V.I. Mitkalinnyy [Candidate of Technical Sciences]. Thermal Work of Open-hearth Furnaces in the Scrap Process 22

The authors describe modifications made on a furnace to achieve higher efficiency when oxygen blast is introduced.

Kuznetsov, N.S. [Docent]. Intensification of the Open-hearth Process by Utilizing Oxygen for Fuel Combustion 33

The author discusses the relationship between the ratio of oxygen introduced, and the heat value of the fuel gas. He also makes recommendations for changes in the refractory lining of furnaces.

Kharitonov, A.S. [Candidate of Technical Sciences], and K.G. Turbin [Doctor of Technical Sciences, Professor]. Use of Oxygen for Intensification of Decarbonization in the Open-hearth Bath 38

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The authors study the possibilities of shortening heat time by forced decarbonization, and by reheating metal during the rimming period with oxygen blast.

Kornfeld, V.N. [Candidate of Technical Sciences]. Effect of Oxygen Utilization on the Degasification of Metal During Melting (Open-hearth Scrap Process) 80

This article is a study of the concentration of gases present in metal in the bath at varying rates of oxygen enrichment of the air and under various conditions of oxygen blast.

Orlov, V.I. [Candidate of Technical Sciences], R.M. Ivanov, [Engineer], and Kh. D. Yerinin [Engineer]. Gas Content in the Open-hearth Bath 98

The authors discuss the content of oxygen, hydrogen, and nitrogen present in the open-hearth bath at various stages of the heat

Banny, N.P. [Candidate of Economic Sciences], and V.A. Romenets

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[Candidate of Technical Sciences]. Technical and Economic
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Kryakovskiy [Candidate of Technical Sciences], and V.P.
Grigor'yev [Engineer]. Intensifying Open-hearth Conversion of
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Oyks, G.N., Yu. V. Kryakovskiy, Ye. A. Kapustin, and V.P.
Grigor'yev. Efficiency of Oxygen Utilization for Enriching Air
in the Open-hearth Conversion of High-phosphorous Pig Iron 152
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different stages of the open-hearth process with and with-
out the use of oxygen.

Oyks, G.N. Selecting the Proper Method for Open-hearth Conversion
of High-phosphorus Pig Iron 166

The author suggests a composition of open-hearth charge,
which, combined with oxygen blast, is supposedly more
efficient in dephosphorization.

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Use of Oxygen in Steelmaking

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Abrosimov, Ye. V. [Candidate of Technical Sciences, Docent].
Intensification of the Open-hearth Scrap Process With Oxygen 177

The author discusses the use of oxygen blast for the intensification of fuel combustion, for the meltdown, for the direct oxidation of charge elements, and for the duration of the entire heat.

Abrosimov, Ye. V., V.A. Kudrin [Candidate of Technical Sciences], and G.I. Demin [Candidate of Technical Sciences, Docent].
Material and Heat Balances of the Open-hearth Scrap Process With Oxygen Blast 195

The authors give an account of a comparative experimental investigations of heat and material balances of open-hearth processes with and without oxygen blast.

Kudrin, V.A. Temporary Overoxidation of the Open-hearth Bath During Oxygen Blast 214

Abrosimov, Ye. V., and V.A. Kudrin. Course of Carbon Oxidation in the Open-hearth Bath During Oxygen Blast 232

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Kudrin, V.A., and Ye. V. Abrosimov. Possibility of Decreasing Time of the Rimming Process Proper in the Open-hearth Bath During Oxygen Blast 252
The author presents a method of decreasing rimming time to 4 to 5 minutes, thus increasing production by 5 to 10 percent

Kryakovskiy, Yu. V. Dust Formation in the Open-hearth Furnace During the Scrap Process 260

Aleksandrova, A.I. [Candidate of Technical Sciences], G.N. Oyks, and N.P. Bannyi. Making Steel From High-phosphorus Pig Iron 281
The authors discuss production data for the conversion of high-phosphorus pig iron, including heat time, slag formation, and the effect of oxygen on fuel consumption.

Glinkov, M.A. Doctor of Technical Sciences [Professor], and N.S. Vavilov [Candidate of Technical Sciences]. Heat Exchange Above the Bath of a Recirculation Steel-melting Furnace 305

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Use of Oxygen in Steelmaking

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This article deals with the thermal and technical aspects of a 10-ton industrial recirculation steel-melting furnace with simultaneous fuel feed from both ends accompanied by the application of oxygen-enriched air.

Krivandin, V.A. [Candidate of Technical Sciences]. Study of Combustion in the Recirculation Steel-melting Furnace 330

The author describes an investigation of the combustion processes, furnace gases, and composition of the exhaust gases.

Rekhtman, A. Ya. [Candidate of Technical Sciences, Docent]. Special Characteristics of Gas Flow in a Recirculation Steel-melting Furnace 354

The author discusses investigations made in a model furnace for the study of gas flow, the distribution of combustion products, and the distribution of pressure on the walls.

Demin, G.I. [Docent]. Heat Balances of a Recirculation Steel-melting Furnace 372

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Molchanov, N.G. [Candidate of Technical Sciences, Docent]. Comparison of Gaseous Fuel Combustion Processes in Furnaces With Through and Recirculating Gas Flows 377

Livshits, B.G. [Doctor of Technical Sciences, Professor], L.A. Shishko [Candidate of Technical Sciences, Docent], and N.G. Lakhman [Engineer]. Quality of Steel Made in a Recirculation Steel-melting Furnace 395

The authors investigate the qualities of recirculation-furnace steels, comparing them with ordinary open-hearth steel.

AVAILABLE: Library of Congress
Card 9/9

GO/ec
10-12-59

PA - 2414

AUTHOR

TITLE

PERIODICAL

ABSTRACT

KORNEL'D V.N. cand.tech., VOYTOV A.O., KOSHELEV V.I., eng.

Smoke Temperature at the Outlet from the Working Space of an Open-Hearth Furnace. (Temperatura dyma u vykhoda iz rabochego prostranstva martenovskoy pechi. Russian)

Stal' 1957, Vol 17, Nr 3, pp 213 - 219 (U.S.S.R.)

Received: 5/1957

Reviewed: 5/1957

In 1954 and 1955 the smoke temperatures in the vertical channels of the 200 t open-hearth furnaces with magnesite chromite vaults and with heads of forsterite-bricks were measured in the course of more than 60 smelting operations. They were carried out without using oxygen and with an enriched air with 25 and 30% O₂. The smoke temperatures were measured in the rear vertical air channel and in individual cases also in the front air channel and in the vertical gas channel at the height of the window sills. A sucking-off pyrometer with a tungsten-molybdenum element was used as measuring device. The smoke temperature at the outlet of the working space of an open-hearth furnace changes within a wide range corresponding to the smelting process and mainly depends on whether the heat strain corresponds to the technological processes and to the intensity of the exothermal reactions in the liquid bath. If this is the case the enrichment of the air by oxygen does not exercise any

CARD 1/2

SOV/137-58-7-14368

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 60(USSR)

AUTHOR: Kornfel'd, V.N.

TITLE: Influence of the Conditions of Oxygen Use Upon the Degasification of the Metal During Smelting (Open-hearth Scrap Process)
[Vliyaniye rezhima primeneniya kisloroda na degazatsiyu metalla v khode plavki (martenovskiy skrap-protsess)]

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 37, pp 80-97

ABSTRACT: Changes in the gas contents of the metal (Me) were studied in experimental heats in a 70-t furnace operated with all-solid-steel charge and heated by heavy oil. O₂ was delivered into the jet of flame during charging and melt-down, and into the bath during the working period. An atmospheric zone of elevated oxidizing capacity developed over the surface of the charge (the bath). Increase in hourly O₂ consumption carried with it an increase in the (FeO)/(MnO) ratio. As the slag becomes more acid, there is acceleration of the burning off of the C during the charging and melting periods; the duration of these periods is reduced by the increase in the heat input possible as the intensity of combustion is enhanced by O₂. Because of the

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SOV/137-58-7-14368

Influence of the Conditions of Oxygen Use Upon the Degasification (cont.)

shorter period of contact with the furnace atmosphere, the Me absorbs less gas therefrom. With increasing hourly O_2 input, the gas content of the Me upon fusion increases owing to the improvement in deaeration of the Me at high rates of carbon removal. The rise in $(FeO)/(MnO)$ apparently diminishes the permeability of the slag to the H_2 in the furnace atmosphere. When the Me is blown with O_2 by lances through the doors with a relatively small contact interface between the O_2 and the Me, a critical rate of blow (rate of delivery of O_2 into the bath) is found to exist. When the rate of blow is higher than critical, the O_2 is delivered to the point of reaction at a rate exceeding the arrival of C thereat, and the equalization of the C contents of the Me becomes, probably, the slowest link in the carbon-removal process. The critical magnitude of rate of blow depends upon the method of introduction of the O_2 , the capacity of the bath, and the range of C levels at which the blow is performed. As the rate of blow is raised to the critical, decarburization increases, and gas removal from the bath improves. Further increase in rate of blow has practically no effect upon them, whereas the oxidation of the Fe increases. Therefore, when the rate of blow is above the critical, there is a temporary accumulation of O in the Me which disappears as the composition of the Me becomes uniform; this then determines the duration of the period of pure boil (after oxygen blow) required.

Card 2/2

L.K.

1. Metals--Processing
2. Metals--Degasification
3. Oxygen--Metallurgical effects
4. Open hearth furnaces--Performance

STROGANOV, A.I.; KORNFEI'D, V.N., red.; KHORAS, L.I., red. izd-va;
MIKHAYLOVA, V.V., tekhn. red.

[Using oxygen in converter steelmaking processes] Primenenie
kislороda v konverternom proizvodstve stali. Moskva, Gos.
nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii,
1958. 143 p. (MIRA 11:11)

(Steel--Metallurgy)
(Oxygen--Industrial application)

SOV/133-58-12-7/19

AUTHOR: Kornfel'd, V.N., Candidate of Technical Science

TITLE: ~~About Efficient~~ and Practical System of Intensification of the Open Hearth Process with Oxygen (Ob effektivnosti i ratsional'nom rezhime intensifikatsii martenovskoy plavki kislorodom)

PERIODICAL: Stal', 1958, Nr 12, pp 1095-1102 (USSR)

ABSTRACT: A comparative analysis of operational results obtained on various works using a supply of oxygen to flame for the intensification of open hearth process is made. The dependence of the increase in productivity (I) and the decrease in specific fuel consumption (II) per lm^3 of oxygen consumed on the intensity of oxygen supply are shown in Fig 1; the dependence of mean velocity of oxidation of carbon during charging of hot iron and melting, changes in the rates of its increase and heat of combustion of CO evolved from the bath on the intensity of supply of oxygen in Fig 5; the efficiency of oxygen during various periods of experimental heats in Table 1; the dependence of the efficiency of oxygen on the distribution of its supply during the individual smelting

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SOV/133-58-12-7/19

About Efficient and Practical System of Intensification of the Open Hearth Process with Oxygen

periods in Table 2. It is concluded that: 1) For the evaluation of the efficiency of application of oxygen for the intensification of open hearth process on various works the specific intensity of its supply to flame ($n \text{ m}^3/\text{hr} : t/\text{m}^2$) i.e. the amount of oxygen supplied per unit of time ($n \text{ m}^3/\text{hr}$) per unit of load on the furnace bottom (t/m^2), can be taken as a determining parameter. 2) The efficiency of oxygen, i.e. the relative increase in the furnace productivity and the relative fuel economy obtained per 1 $n \text{ m}^3$ of specific oxygen consumption is directly proportional to the specific intensity of oxygen supply (for both routine and experimental heats on all works using oxygen). 3) A rational intensity of supply of oxygen to flame during charging and heating up periods is determined by the possibility of speeding up these operations, and thus depends on the conditions prevailing at the works. Therefore, it should be experimentally determined in each melting shop. 4) A rational specific intensity of the supply of oxygen to flame during the

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SOV/133-58-12-7/19

About Efficient and Practical Systems of Intensification of
the Open Hearth Process with Oxygen

melting period is approximately 1000-1250 m³/hr: t/m²
for all works, operating by the scrap ore process,
providing that a rapid and complete removal of slag is
possible. 5) When the availability of oxygen is limited
its supply with an equal intensity during the whole
charging and melting periods, which is at present used
on all works, is not always rational. The consumption
of the whole available oxygen during the melting period
is apparently rational in all works where speeding up of
charging and heating up which is necessary when operating
with oxygen during these periods, is more difficult than

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About Efficient and Practical System of Intensification of
the Open Hearth Process with Oxygen
speeding up changing of the slag ladles during the
utilisation of oxygen in the melting period.
There are 6 figures, 2 tables and 15 references (all
Soviet).

ASSOCIATION: Tsentroenergochermet

Card 4/4

SOV/133-59-6-13/41

AUTHORS: Kornfel'd, V.N., Candidate of Technical Sciences,
Voytov, A.O., Koshelev, V.I., Shorin, A.F. and
Dymov, B.K., Engineers

TITLE: Thermal Performance of an Open Hearth Furnace when
Blowing Oxygen or Oxygen Water Mixture into the Bath
(Teplovaya rabota martenovskoy pechi pri produvke
metalla)

PERIODICAL: Stal', 1959, Nr 6, pp 513-520 (USSR)

ABSTRACT: Thirty eight experimental heats with blowing oxygen
into the metal bath were carried out on a 200 ton open
hearth furnace operating with 70% of hot iron. The
moment of the beginning of blowing was varied. In
order to decrease the formation of fumes during blowing
in some heats, water was introduced into the oxygen
stream (0.7 - 0.9 litres per 1 m³ of oxygen). The
consumption of oxygen during blowing varied from 25 to
35 m³/min and when using water additions from 27 to
37 m³/min. Thermal load during the experimental heats
was manually controlled on the basis of systematic
analyses of the combustion products in vertical flues

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SOV/133-59-6-13/41

Thermal Performance of an Open Hearth Furnace when Blowing Oxygen or Oxygen Water Mixture into the Bath

and temperatures of the roof (magnesite chromite) and the top of the air regenerators (upper layers - forsterite bricks). In some moments of the heats the thermal load was limited by draught capacity of the furnace. The oxygen supply to flame was cut off during blowing period in order to economise oxygen. The experimental results obtained are shown in Figures 1 - 8. It was found that: 1) Due to an acceleration of decarburisation of metal and an intensification of the evolution of CO from the bath, thermal load during blowing is considerably decreased. Correspondingly the mean thermal load for the whole decarburisation period (from charging of hot iron to the end of blowing) also decreases. 2) When the blowing is started at an optimal moment, the course of heat in the thermo-technological sense substantially differs from the usual one for the open hearth process. Under experimental conditions the mean thermal load during blowing was decreasing to 14 million cal/hr, whereupon

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Thermal Performance of an Open Hearth Furnace when Blowing Oxygen or Oxygen Water Mixture into the Bath

during 30 - 40 minutes it actually amounted to 5 - 6 mil cal/hr and during 15 - 20 minutes of the most violent evolution of CO from the bath, the supply of fuel was completely stopped. 3) The mean thermal load for the whole decarburising period (from charging hot iron to end of blowing) was actually determined by the proportion of the period taken for blowing, the earlier the blowing was started, the lower was the mean thermal load for this period. 4) The absorption of heat by the bath (per unit of time) and the coefficient of the utilisation of the furnace working space increases during blowing. On average during blowing as well as during the decarburisation period the above factors were higher the earlier blowing was started. 5) The period of decarburisation decreases more, the earlier blowing is started, whereupon the rate of decrease of the decarburising period increases faster than the rate of increase of the rate of heat absorption by the bath. Therefore, if blowing was started too early, the metal remains

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Thermal Performance of an Open Hearth Furnace when Blowing Oxygen or Oxygen Water Mixture into the Bath

insufficiently heated when the blowing is finished and it is necessary to heat it further under inconvenient conditions of decarburised bath. A rational relationship of the duration of the decarburising period and intensity of heating up metal will be obtained only if the blowing is started at an optimal moment, as only then will the maximum thermo-technical effect be obtained. Under experimental conditions, the average specific consumption of conventional fuel for heats in which the blowing was started at the optimum moment decreased to 87 kg/t (with specific consumption of oxygen 37 m³/t, including 22 m³/ton added to flame before starting blowing). 6) On the addition of water to the stream of oxygen for the prevention of excessive fuming, the abovementioned relationship remains valid. However, as a proportion of heat is consumed for the evaporation of water and heating up of the steam formed to a

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SOV/133-59-6-13/41

Thermal Performance of an Open Hearth Furnace when Blowing Oxygen or Oxygen Water Mixture into the Bath

temperature of the products of combustion, the decarburisation process proceeds less intensively and the heat absorption by the bath and the thermal coefficient of utilisation of the furnace working volume are lower than on blowing oxygen alone. The minimum average specific fuel consumption for heats in which the blowing with the oxygen-water mixture was commenced at the optimum moment for the experimental condition amounted to 107 kg/ton for the whole heat (at the same oxygen consumption as on blowing oxygen alone). 7) In the course of heats with blowing oxygen or oxygen water mixture, the temperature conditions of the furnace lining do not differ materially from ordinary heats, providing the thermal load is controlled according to the intensity of the evolution of carbon monoxide from the bath and normal conditions of normal combustion in the working volume are maintained. A high velocity of the processes taking place during blowing requires continuous watching of the thermal conditions of the heat (an appropriate automation of

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SOV/133-59-6-13/41

Thermal Performance of an Open Hearth Furnace when Blowing Oxygen or Oxygen Water Mixture into the Bath

the control of this process is necessary). 8) Under the experimental conditions the optimum moment for the beginning of blowing was found to be between 60 and 80 minutes after the beginning of charging of liquid iron. The optimum moment can be shifted nearer to the time of charging liquid iron, by decreasing the proportion of the cold component of the charge. However, the advisability of such a measure should be determined under the actual conditions of the economy of the process as a whole. There are 8 figures and 4 Soviet references.

ASSOCIATION: Tsentroenergochermet i Moskovskiy institut stali
(Tsentroenergochermet and Moscow Institute of Steel)

Card 6/6

KOCHO, Valentin Stepanovich; GRANKOVSKIY, Vadim Ivanovich; KORNFEI'D,
V.N., red.; SIDOROV, V.N., red.izd-va; DOBUZHINSKAYA, L.V.,
tekh.n.red.

[Heat processes in open-hearth furnaces] Teplovaya rabota
martenovskikh pechei. Moskva, Gos.nauchno-tekhn.izd-vo
lit-ry po cherno i tsvetnoi metallurgii, 1960. 187 p.
(MIRA 13:2)
(Open-hearth furnaces) (Heat--Transmission)

TRUBETSKOV, K.M., kand.tekhn.nauk; ~~KORNEEL'D, V.N.~~, kand.tekhn.nauk
GREKOV, Ye.A., inzh.; VOYTOV, A.O., inzh.; SHTEYNBERG, L.S., inzh.;
LOMTATIDZE, G.A., inzh.

Investigating the melting of the open-hearth furnace charge with
various methods of using oxygen [with summary in English]. Stal'
21 no.3:214-222 Mr '61. (MIRA 14:6)
(Open-hearth furnaces) (Oxygen--Industrial applications)

KORNFEL'D, V.N., kand.tekhn.nauk; VOYTOV, A.O., inzh.; SHTEYNBERG, L.S.,
inzh.; GREKOV, Ye.A., inzh.

Control of open-hearth furnace smelting by the composition and
temperature of combustion products. Stal' 21 no.10:950-958 0
'61. (MIRA 14:10)

1. TSentroenergochermet i TSentral'nyy nauchno-issledovatel'skiy
institut chernoy metallurgii.
(Open-hearth furnaces--Combustion)

KORNFEL'D, Vladimir Naumovich; VOYTOV, Anatoliy Olimpiyevich;
~~SHTEINBERG, Leonid Solomonovich~~

[Heat processes in open-hearth furnaces using oxygen]
Teplovaia rabota martenovskoi pechi s primeneniem kis-
loroda. Moskva, Metallurgiya, 1964. 327 p.
(MIRA 17:12)

KORN'FEL'D, YA. A.

KORN'FEL'D, YA. A./Chl - Korr. Akademii Arkhitektury SSSR i OSTROVSKAYA, S. Z. Arkh.

Arkhitektura Domov Bionerov

Page 75

SO: Collection of Annotations of Scientific Research Work on Construction, completed in 1950, Moscow, 1951

KORNFIELD, L.

On the preparation of concrete; concrete mixers. p. 611.

REVISTA CALOR FERATE. (Caille Ferate Romine) Bucuresti, Rumania.
Vol. 6, no. 11, Nov. 1958.

Monthly List of East European Accessions (EEAI) IC, Vol. 3, no. 7, July 1959

Uncl.

KORNGUT, JOZEF

Zastosowanie wlny zuzlowej. Warszawa, Paustwowe Wydawn. Techniczne, 1951. 18 p.
(Instytutu Techniki Budowlanej; nr. 95. Prace Komisji Zuzlowej, nr. 9)
Application of slag wool. bibl., diagrs.

East European Vol. 3, No. 3
SO: Monthly List of ~~Russian~~ Accessions, Library of Congress, March ⁴ 195⁴, Uncl.

634 03-7

Slag wool. J. Korogut (Helsinki, 1961, 18, 249-252; J. Iron
Steel Inst., 1962, 279-284)—The technique of slag wool production
is reviewed with special reference to methods used in the U.S.S.R.
R. B. CLARKE.

KORNGUT, J.

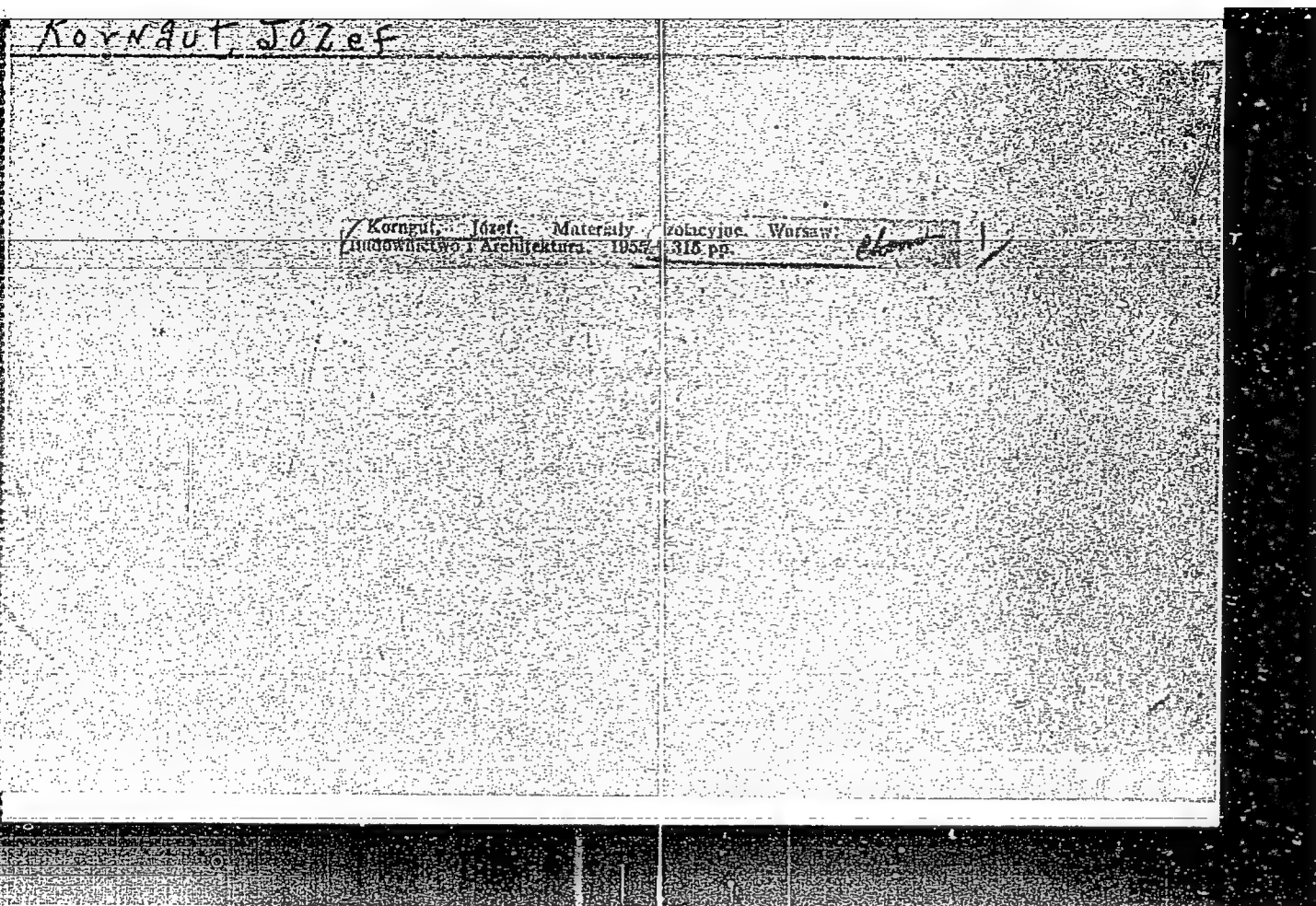
Present situation in the production of waterproof materials in Poland. p. 66.
(PRZEGLAD EUDOMLANY, Vol. 26, No. 3, Mar. 1954, Warszawa, Poland)

30: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

KORZCUT J.

Waterproof materials. p. 68. (PRZEGLAD BUDOWLANY, Vol. 26, No. 3, Mar. 1954, Warszawa, Poland)

SO: Monthly List of European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.



KORNGUT, Jozef (Mgr. Engr.)

Mgr. Eng. Boleslaw Kierski, Mgr. Eng. Jozef KORNGUT, Mgr. Eng. Michal Zubelewicz, "Major Directions in the Production of Construction Materials in the Current Five Year Plan," Materialy Budowlane (Construction Materials), Vol. XXI, No. 10, Warsaw, October 1957, pp 289-298.

KORNGUT, Jozef, mgr. inz.

The plan of automation in the current five-year plan. Pt. 2.
(To be scntd.) Przem mat budowl 21 no.21:2 My '62.

KORNGUT, Jozef, mgr. inż.

Automation in the current five year economic plan. Przem mat
budowl 9 no.20:2 ~~My~~ '62.

YUGOSLAVIA / Chemical Technology. Chemical Products and H
Their Applications. Fats and Oils. Waxes.
Soaps and Detergents. Flotation Agents.

Abs Jour: Ref Zhur-Khimiya, 1959, No 4, 13347.

Author : Kornhauser, Aleksandra; Perpar, Marija, Tiser, Vida.
Inst : Not given.
Title : Oil of Ergot.

Orig Pub: Acta pharmac. jugosl., 1956, 6, No 1, 33-38.

Abstract: Results of a study of the extraction rate of oil
from different varieties of ergot (from Yugoslavia)
are given. Analytical characteristics of oil of
ergot are given. -- From the authors' resume.

Card 1/1

105

COUNTRY : YUGOSLAVIA
CATEGORY : Chemical Technology. Chemical Products and
Their Applications. Synthetic Polymers. *
ABST. JOUR. : RZKhim., No. 19, 1959, No. 69660
AUTHOR : Kornhauser, A.
INST. :
TITLE : Possibilities of Employing Radioactive Emana-
tions in Certain Commercial Processes.
DATE. PUB. : Kemija u industriji, 1958, 7, No 5, 121-124,
132
ABSTRACT : Review of the application of radioactive ema-
nations, particularly in the field of pro-
duction of the polymerization products. The
bibliography covers 15 titles.
-- Ye. Stefanovskiy.

*Plastics.

CARD: 1/1

H - 139

KORNIAUSER, A.

"The reaction of ureido esters with acid anhydrides;" a dissertation.
Creat chem acta 34 no.3:B5 '62.

1. Tracer Laboratory, Institute "Ruder Boskovic", Zagreb, Croatia,
Yugoslavia.

KORNHAUSER, A.; KEGLEVIC, D.; HADZIJA, O.

Diacetamides. Note II. Croat chem acta 34 no.3:167-174 '62.

1. Tracer Laboratory, Institute "Ruder Boskovic", Zagreb, Croatia, Yugoslavia. 2. Clan i tajnik Redakcionog odbora, "Croatica Chemica Acta" (for Koglevic).

KORNHAUSER, PERPAR

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Organic Substances

E-3

Abs Jour : Ref Zhur - Khimiya, No 3, 1958, No 7727

Author : Kornhauser, Perpar

Inst : Not Given

Title : The Separation and Determination of Ergothionine in Ergot Alkaloids.

Orig Pub : Acta pharmac., Jugosl., 1956, 6, No 3-4, 219-222

Abstract : The previously described method for the separation of ergothionine (I) from ergot alkaloids (Hunter and others, Can. J., Reserach, 1949, E 27, 226) has been modified: Uranyl acetate used for the precipitation of related substances was replaced by Pb acetate. For the photometric determination of I, to 2 ml of the diazoreagent (to 1.5 ml of a solution obtained by the solution of 9 g of sulfanilic acid in 90 ml of 37.4% HCl and diluted to 1 liter, 1.5 ml of 5% solution of NaNO_2 are added, with the addition of 6 ml NaNO_2 solution 5 minutes later) 1 ml of a solution of $\text{CH}_3\text{COONa}-\text{Na}_2\text{CO}_3$ (1 g Na_2CO_3 diluted in a solution of 10 g CH_3COONa and diluted

Card : 1/2

Card : 2/2

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KORNIAK, Adam, mgr., inz.

The planned extension of the Stettin repair yards in the years
1961-1965. Tech gosp morska 11 no.4:107-109 '61.

1. Biuro Projektow Budownictwa Morskiego, Gdansk.

KORNIAK, Adam, mgr., inz.

Cleaning of ship tanks. Tech gosp morska 11 no.10:301-303 '61.

1. Biuro Projektow Budownictwa Morskiego, Gdansk.

KORNIAK, Adam, mgr., inz.

Establishment of a shipbreaking center. Tech gosp.morska 12 no.1:6-7
'62.

1. Biuro Projektow Budownictwa Morskiego, Gdansk.

(Poland—Ships)

Card 1/2

ACC NR: AP7004960

conductivity increased with time and reached saturation in about 2 min; the radical-luminescence also increased with time and approached saturation, but it did not begin to rise rapidly until the conductivity was nearly saturated. The radical-luminescence was found not to add to photoluminescence, the photoluminescence intensity being practically the same whether radical-luminescence was also present or not. This behavior is ascribed to photodesorption of atoms and radicals. After a brief discussion it is concluded that the present experimental results confirm the radical-luminescence excitation mechanism proposed in the references cited above. Orig. art. has: 1 formula and 3 figures.

SUB CODE: 20 SUM DATE: none ORIG. REF: 004 OTH REF: 003

Card 2/2

GORBAN', A.N.; KORNICH, V.G.; MAZHARA, V.P.

Effect of hydrogen adsorption and desorption on the afterglow
kinetics of the crystal phosphor ZnS-CdS, Cu. Opt. i spektr.
15 no.1:130 J1 '63. (MIRA 16:8)

(Phosphors)

L 13109-63

EWI(1)/EWI(m)/EWP(q)/BDS AFFTC/ASD JD

ACCESSION NR: AP3003424

S/0051/63/015/001/0130/0130

AUTHOR: Gorban', A.N.; Kornich, V.G.; Mazhara, V.P.

56

TITLE: Influence of adsorption and desorption on the afterglow of ZnS-CdS:Cu phosphor

SOURCE: Optika i spektroskopiya, v.15, no.1, 1963, 130

TOPIC TAGS: adsorption, desorption, phosphorescence, ZnS-CdS-Cu phosphor, ZnS-CdS, Cu phosphor

ABSTRACT: Hydrogen molecules are readily adsorbed in atomic form on many surfaces including those of phosphors; upon desorption, the H atoms recombine to molecules. According to the electronic theory of chemisorption, in the case of "strengthening" of the bond of the gas atom with the adsorbent lattice (for example, adsorption of hydrogen on ZnS-CdS:Cu phosphor) a free electron appears; desorption is accompanied by the appearance of a free hole. Accordingly, from the standpoint of the electronic radical-luminescence mechanism adsorption and desorption should affect the afterglow (phosphorescence) of an excited phosphor. The authors carried out experiments with ZnS-CdS:Cu phosphor in a vacuum vessel. Upon admission of hydrogen the decaying phosphorescence picked up abruptly (small

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L 13109-63

ACCESSION NR: AP3003424

peak in the decay curve); upon rapid evacuation the phosphorescence intensity dropped. Repeat admission of hydrogen resulted in a second brief rise. Thus, the experimental results substantiate the predictions of theory. Orig.art.has: 1 figure.

ASSOCIATION: none

SUBMITTED: 20Dec62

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 00

Card 2/2

L 15520-63

JD/TTC/D

ACCESSION NR: AP3005239

ENP(q)/ERT(m)/ES(w)-2/EDS

AFPTC/ASD/AFWL/SSD

Feb-4

8/0056/63/045/002/0038/0042 72 69

AUTHORS: Ishkhanov, B. S.; Kornienko, E. N.; Sorokin, Yu. I.; Shevchenko, V. G.; Yur'yev, B. A.

TITLE: Cross section of the reaction $Rh^{103}(\gamma, p)$ 19

SOURCE: Zhur, *eksp. i teoret. fiz.*, v. 45, no. 2, 1963, 38-42

TOPIC TAGS: photoproton, rhenium, quadrupole absorption, neutron emission

ABSTRACT: The yield curve of the reaction $Rh^{103}(\gamma, p)$ was measured for maximum photon energies ranging from 14.5 to 32.5 MeV by recording the photoprotons with scintillation spectrometers. The measurement was aimed at checking the presence of appreciable quadrupole absorption. The cross section calculated by the Penfold and Leias matrix method reaches $8 + 1.5$ mb at the maximum, at $19. + 0.5$ MeV. The half-width at the peak is approximately 5.5 MeV. The cross section increases following a drop in the vicinity of 21--23 MeV, apparently owing to electric quadrupole absorption in the 25--30 MeV region. The integral cross section for the (γ, p) reaction is found to be $85 + 15$ MeV-mb. It is concluded that an appreciable part of the quadrupole transitions lead, owing to the mixing

Card 1/42 Note: ignore Topic Tag "rhenium"; should be rhodium

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L 15520-63

ACCESSION NR: AP3005239

of the configurations, to the emission of neutrons, in agreement with the presence of asymmetry in the angular distributions of fast photoneutrons, observed on many nuclei, and confirms in addition the important role of the residual interactions in quadrupole absorption. "We are grateful to V. G. Neudachin and N. P. Yudin for a discussion of the results, and also to N. N. Balamtov and the Betatron crew for help." Orig. art. has 3 figures. 4

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics, Moscow State University)

SUBMITTED: 13Feb 63

DATE ACQ: 06Sep63

ENCL: 02

SUB CODE: PH

NO REF SOV: 011

OTHER: 008

Card 2/4

16.6500

43185
S/021/62/000/007/001/008
I027/I227

AUTHOR: Kornienko, Yu. V.

TITLE: Construction of asymptotic solutions of a wave equation with small nonlinearity for waveguide

PERIODICAL: Akademiya nauk Ukrayns'koy RSR. Dopevidi, no.7, 1962, 845-849

TEXT: An asymptotic solution is constructed for the equation

$$\Delta u - \frac{1}{c^2} \frac{\partial^2 u}{\partial t^2} = \delta u + \epsilon f(u, \nabla u, \frac{\partial u}{\partial t}) \quad (1)$$

(ϵ - a small parameter, f - analytic function), with zero boundary condition on a cylindrical surface $F(y, z) = 0$ and some initial conditions for $G(x, t) = 0$. By taking a sufficient number

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S/021/62/000/007/001/008
I027/I227

Construction of asymptotic solutions...

of terms, the error of the solution is of order ε^N (N is a given natural number) in the region $0 \leq x, t \leq \frac{1}{\varepsilon}$. The construction employs methods of Krylov and Bogolyubov-Mitropolskiy [Ref. 2: Asimptoticheskie metody v teorii nelineynykh kolebaniy (Asymptotic methods in the theory of non-linear oscillations) Fizmatgiz, 1958] for weakly-run linear oscillatory systems with a finite number of degrees of freedom. The extension given here for cases of infinite numbers of degrees of freedom can be continued further to other boundary conditions and for cases where slowly changing parameters enter the coefficients of the boundary and initial conditions.

ASSOCIATION: Institut radiofiziki i elektroniki AN USSR (Institute of Radio Physics and Electronics, AS UkrSSR) ..

PRESENTED: by Y.A. Mitropolskiy, Academician, UkrSSR ..

Card 2/3

S/021/62/000/007/001/008
I027/I227

Construction of asymptotic solutions...

SUBMITTED: August 15, 1961

Card 3/3

KOVNATSKIY, M.A.; GORN, L.Ye.; GRODZENCHIK, N.A.; YERMAKOVA, P.M.; KONIKOVA, G.S.;
KORNIGS, A.I.; KUZNETSOVA, M.V.; MEL'NIKOVA, L.M.

Silicosis, etiology, pathogenesis, and clinical aspects. Gig. sanit.,
Moskva no.8:28-32 Aug 1952. (GIML 23:2)

1. Of the Clinical Department of Leningrad Scientific-Research Institute
of Labor Hygiene and Occupational Diseases.

KORNIKOV, I.I.; MATVEYEVA, M.N.

Continuous solid solutions of metallic compounds FeCr and FeV.
Dokl. AN SSSR 98 no.5:787-790 0 '54. (MLRA 8:2)

1. Institut metallurgii im. A.A.Baykova Akademii nauk SSSR.
Predstavleno akademikom G.G.Urasovym.
(Iron--Chromium alloys) (Iron--Vanadium alloys)

KORNIKOV, I.I.

Category : USSR/Solid State Physics - Phase Transformation in Solid Bodies E-5

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6614

Author : Kornikov, I.I.

Title : Significance of Physico-Chemical Analysis to Metal Chemistry

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 6, 1368-1382

Abstract : No abstract

Card : 1/1

KORNIKOV, I.I.; MATVEYEVA, N.M.

Chemistry of the vanadium metal. Trudy Inst. met. no.8:82-106
'61. (MIRA 14:10)

(Vanadium--Metallography)
(Phase rule and equilibrium)

KORNIKOV, N.A.

Colloform nonmetallic minerals in the Pechenga sulfide copper-nickel
deposits and their association with the process of ore crystallization.
Mat.po min.Kol'.poluost. 1:30-38 '59. (MIRA 15:2)
(Pechenga District--Mines and mineral resources)
(Crystallization)

KORNIKOV, N.A.

Chlorites from the copper-nickel deposit in Pechenga District.
Mat.po min.Kol'.poluest. 1:39-48 '59. (MIRA 15:2)
(Pechenga District--Chlorites)